

## DEVICE

The mains powered LAN-WMWUS-R3-M is a wireless MBUS repeater mounted with AC/DC adapter in combined enclosure. The device is a plug-and-play and highly configurable repeater for extending the range between a device and a collector/gateway. The enclosure is chosen to make the repeater as discrete as possible.

## ANTENNA

The device make use of 2 internal antenna high performance antennas. The antennas are mounted 90 degrees taking advantage of horizontal and vertical polarizations for maximum range. This diversity is important especially indoor operation since the meters and gateway can be mounted either to the side or above the repeater. If meters have different polarization (antenna alignment) a loss of as much as 30 dBm can be observed. This also minimize multipath problems.

## PERFORMANCE

Every minute a message is sent from the device with number of routed packages and the number of routed slots used and sw revision. This message could be used as an indication the device is up and running and the load of the repeater. This message is also used for time synchronizing in multihop system. The device is highly immune to electrical disturbances that could be generated from example LED lights in buildings, etc.

## FIRMWARE

MODES	T and C or S mode (optional), (868MHz)
REPETITION	2 times. 1 transmission on each antenna.
MAX SENSORS	1024 sensors.
MAX PACKET LENGTH	255 bytes
FILTERING	0 to 30 min suppression timer, RSSI, manufacturer (tbi), longest packet etc.
SECURITY	Supports routing of Security Profile A and B according to OMS 4.
STATUS TX INTERVAL	60 seconds.

## RADIO

RECEIVER CLASS	1,5
RADIATED POWER	< 14 dBm
SENSITIVITY	down to S/T,C -109 dBm/-105 dBm
TRANSMISSION	Listen before talk, polite spectrum access.

## GENERAL INFORMATION

POWER SUPPLY	100-240V AC
STANDARDS	2014/53/EU (RED) EN 13757-3/4:2013, OMS 4.0.2* * retransmit delay time 20-50 ms
TEMPERATURE	-40° / +85°
ENCLOSURE	IP 67, 130 x 130 x 35 mm.
MATERIAL	PC, Grey

## DEVICES

LAN-WMBUS-R3-M-H1/3	230 V AC mains powered. 1/3 hop support
LAN-WMBUS-R3-M24-H1/3	24 V AC or DC mains powered. 1/3 hop
LAN-WMBUS-D1-TC	Configuration dongle.

## ROUTING

The advanced collision avoidance algorithm minimizes problems with collisions and data repetition. To ensure proper functionality a randomized delay is used before repeating the message. The repeater family normally works with maximum 1 hop. That means that data cannot be sent from repeater to repeater. The repeater is however also available with an transparent, static routing algorithm, that allow controlled static multihop repeating, of wireless MBUS packets. The repeater supports as standard the short and long transporthead as well as extended link layer 1-4.

## CONFIGURATION

All devices could be used right out of the box but they are also highly configurable. It is for example possible to configure the "suppression" timer to set the number of minutes before a data from a specific device should be routed again. For the multihop repeater is possible to setup the static routing used by the repeater, to allow safe multihop operation. It is also possible to configure the device to automatically append the RSSI value of the received data, to ease monitoring of the system. The on site configuration is performed using a Lansen Wireless M-BUS programming dongle. The configuration is performed using a Lansen Wireless M-BUS programming dongle.

